

ABSTRACT OF THE DISCLOSURE

The present invention relates to a new essential downstream component of the Wnt/Wingless (Wnt/Wg) signaling pathway and therapeutic and diagnostic applications based thereon. The invention relates to nucleotide sequences of the *Drosophila melanogaster legless (lgs)* gene, of its encoded proteins, as well as derivatives (e.g., fragments) and analogues thereof. The invention further includes vertebrate and invertebrate homologues of the Lgs protein, comprising proteins that contain a contiguous stretch of amino acids with similarity to the *Drosophila lgs* gene. The invention further relates to the function of the *Drosophila* and the human *Lgs* proteins. Methods for producing the *Lgs* proteins, derivatives and analogs, e.g., by recombinant means and antibodies to *Lgs* are provided by the present invention. In addition, the invention also relates to the therapeutic and diagnostic methods and compositions based on *Lgs* proteins and nucleic acids or fragments thereof.